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AUTHOR Rolheiser, Carol; Ross, John A.; Hogaboam-Gray, Anne
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ABSTRACT

This research investigated the impact of combining two approaches to inservice teacher education (action research and train the trainer) on teacher attitudes and practices. The inservice developed assessment approaches aligned with cooperative learning instructional approaches. Teachers were introduced to a model of collaborative assessment aimed at improving students' abilities to self-evaluate. A team of five university and school/district personnel conducted a series of three inservice sessions over 4 months. Teams of teachers from several schools were paired, with two teachers attending the first full-day inservice as trainers, working back at the school with their partners (trainees), then attending the second and third inservice sessions together. The effects of the inservice were measured in a pre-post design which examined the impact of the inservice design on personal teaching efficacy, general teaching efficacy, commitment to authentic practices, and commitment to traditional testing practices. Data were also collected on how teachers used the four stages in the study model for teaching self-evaluation. Researchers found significant pre-post changes. Use of self-evaluation procedures increased substantially, commitment to authentic assessment practices increased, commitment to traditional assessment practices declined, and personal teaching efficacy scores were higher. The action-research-enhanced train-the-trainer approach facilitated teachers' movement toward student assessment practices congruent with the ideals of the cooperative learning/teaching practices. This approach also succeeded in enhancing teachers' beliefs about their competence. (Contains 48 references.) (SM)

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Assessment in the Cooperative Classroom: Using an Action Research Enhanced Version of the Train the Trainer In-service Model to Impact Teacher Attitudes and Practices[1]

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Carol Rolheiser
John A. Ross
Anne Hogaboam-Gray
Ontario Institute for Studies in Education
University of Toronto

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The purpose of the research was to conduct an exploratory investigation of the impact of combining two approaches to in-service -- action research and train the trainer approaches -- on teacher attitudes and practices. This is a continuing study in a line of inquiry investigating assessment practices in the cooperative learning (CL) classroom. The content of the in-service was on the development of assessment approaches aligned to cooperative learning (CL) instructional approaches. Specifically, teachers were introduced to a model of collaborative assessment aimed at improving students' abilities to self-evaluate. A team of five university and school/district personnel conducted a series of three in-service session over the course of four months. Participants from each school were paired, with two teachers attending the first full day in-service as trainers, working back at the school with their partners (trainees), and then attending the second and third in-service sessions together. The effects of the in-service conditions were measured in a pre-post design. The study examined the impact of the in-service design on personal teaching efficacy, general teaching efficacy, commitment to authentic assessment practices, and commitment to traditional (psychometric) testing practices. In addition, data was collected regarding how teachers used the four stages in our model for teaching self-evaluation. The latter data were produced as a handbook of lesson plans, student products, and teacher reflections. We found significant pre-post changes: use of self-evaluation procedures increased substantially, commitment to authentic assessment practices increased while commitment to traditional assessment practices declined, and personal teaching efficacy scores were higher. The action research enhanced train the trainer approach was successful in facilitating teachers' movement toward student assessment practices congruent with the ideals of the cooperative learning teaching practices. This approach was also successful in enhancing teachers' beliefs about their competence. Although a great deal of experimentation in new forms of professional development has occurred, few studies have assessed the outcomes of different models. The findings of this study provide evidence of the relative effects of a combined approach to district-level in-service that capitalizes on the strengths of both a train the trainer approach and an action research approach.

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Literature Review

The Train the Trainer Approach

In the train the trainer method, staff developers provide instruction to work group representatives rather than to all members of the unit. Recipients of direct training are expected to master the new material and then teach it to their peers in the home unit. The few studies of that have been conducted on this approach tend to report positive outcomes (e.g., Hester et al., 1996; Wedman et al., 1996).

The train the trainer method has several advantages. The first is economic: in-serving a few teachers may accomplish, at reduced cost, the same result as providing instruction for all teachers. Ross (1990), in a study of 64 grade 4 classes, found that training school representatives produced the same improvements in student problem solving as training all teachers. The results were relatively robust: the same finding was obtained regardless of whether the in-service was provided during or after school. Neef (1995), in the only other controlled study of the relative impact of the train the train approach, also found virtually identical student improvements for a train the trainer method (professionals trained parents who then trained other parents), as for a treatment in which a professional trained the whole sample directly.

The second advantage of the train the trainer approach is cultural. Asking teachers to share teaching strategies with their peers increases opportunities for teacher leadership, communicates administrator confidence in the professional responsibility of staff, and reduces norms of isolation and privatism that impede the spread of innovations. Collaborative cultures are consistently associated with school improvement (Cousins, Ross, & Maynes, 1994; Hopkins, Ainscow, & West., 1994).

The third advantage is that talk between teacher trainers and their trainees promotes teacher learning. In meta-analyses by Bennett (1987) and Yeany and Padilla (1986), PD designs that encouraged teachers to talk about the material to be learned produced more teacher change than other in-service activities. Professional sharing contributes to rehearsal of new ideas, identification of gaps in knowledge, and increases teacher reflection (Ross & Regan, 1993). Modeling of innovations by peers is likely to be more illuminating and motivating than modeling by experts (Bandura, 1997).

The train the train approach also has disadvantages. It may create a status hierarchy, accentuating existing cleavages between those selected for the training and those at the end of the chain. Trained teachers may resist being cast in the role of expert and may prefer noninterventionist methods too subtle to overcome teacher resistance (Veslind & Jones, 1998). Teachers who have experienced a constructivist approach to teacher learning may communicate the products of their in-service experience but use a didactic approach in conflict with the process they experienced (Bencze, 1995; Bickel & Hattrup, 1995). The train the train approach may also founder due to the poor selection of trainers, lack of skill in the role, and too little time spent with the ultimate trainees.

The Action Research Approach

The disadvantages of the train the trainer method might be reduced if an action research component is added.

In order to identify the key attributes of action research it is useful to look at its origins. The principles underlying action research have a long history. The German philosopher G.W.F. Hegel (1771-1831) and educational theorist John Dewey (1860-1952) both "challenged the traditional idea that knowledge consists of eternal, universal principles discovered by intellectuals and passed on unchanged to the consumers of knowledge" (Beck, 1998, p49). Both viewed the first hand, concrete experiences of teachers in their classrooms to be essential in understanding educational principles and how they should be applied in specific contexts. The actual term "action research", was first used in the 1940s by Kurt Kewin, and implied the purposeful "application of tools and methods of social science to immediate, practical problems, with the goals of contributing to theory and knowledge in the field of education and improving practice in schools" (Kemmis, 1980, as reported in Oja & Smulyan, 1989, p.1). Stephen Corey, an educational researcher in the 40s, was among the first to use action research in the field of education. He believed that changes in educational practice would be more likely to occur when teachers were involved in inquiry and the application of findings and he maintained that this form of inquiry was a valid source of original educational knowledge. He also emphasized the importance of collaboration in action research. Corey maintained "that if teachers do research together, the program modifications developed will be more feasible, there will be a greater commitment to change, a wider range of talents will be utilized and individual teachers will be less open to attack for their innovations" (Beck, 1998, p.50-51). While the 60s and early 70s saw little interest in action research in America, the time following saw renewed interest, especially because researchers were questioning the applicability of quantitative and experimental methods of research to educational issues and challenges. There was a need for methods that would capture complex classroom realities, and that would be useful decision-making tools for practitioners as they modified treatments throughout a process (Oja, & Smulyan, 1989). In the mid 70s new and expanded views of action research in education began to appear, including in the form of collaborative action research between teachers and university academics (e.g., Atwell, 1991). As McKernan notes, in this collaboration each "shares in planning, implementing, analyzing and reporting the research and...team members contribute unique skills and expertise in a collective process" (1998, p.180). These new forms, including collaborative action research, were seen as simultaneously contributing to knowledge in the field, and improved practice in the classroom (Oja, & Smulyan, 1989).

In examining this long history of action research there appears to be four basic elements that emerge. First is the stress on collaboration, second its focus on practical problems, third its emphasis on professional development, and fourth its need for a structure that allows participants time and support for dialogue (Oja & Smulyan, 1989). These attributes guided the design of our action research enhanced approach to the train the trainer method of in-service used in this study.

In reviewing the history advantages and disadvantage also emerge. The advantages of action research projects coincide with three general aims of this approach: staff development, improved school practice and the modification and elaboration of theories of teaching and

learning. "Staff development through action research may take a number of forms, including increased teacher understanding of the classroom and school (Carr and Kemmis, 1986; Grundy and Kemmis, 1982; Nixon 1981); increased self-esteem resulting from active involvement in research, professional conferences, and perhaps publication (Elliott, 1985; McCutcheon, 1981; Sheard, 1981) and greater feelings of competence in solving problems and making decisions related to teaching and learning. Improved practice results from practitioner participation in the investigation of actions and issues of immediate importance." (as reported in Oja & Smulyan, 1989, p1-2). Action research helps teachers improve their individual practice in several ways. Teachers buffeted by reform movements launched from outside the school become more powerful when they have access to research data and tools (Schensul & Schensul, 1992). They may also be more willing to take professional risks if their involvement in research leads them to feel in greater control of their professional lives. Data obtained through one's own efforts are more immediate and meaningful. Teachers are more likely to use research findings productively if the research provides a sense of ego involvement (Cousins & Earl, 1995; Cousins & Walker, 1995).

As well, teachers engaged in action research make important contributions to educational theory; theory that is importantly grounded in the realities of school. Action research encourages teachers to become instructional theorists. When teachers conduct research they articulate their intentions, test assumptions, and make connections among elements of their practice (Cochran-Smith & Lytle, 1990). Their contributions often include the discovery and elaboration of theoretical frameworks underlying their practice (Carr and Kemmis, 1986).

Although not every action research project aims at or meets all of these goals -- staff development, improved school practice and the modification and elaboration of theories of teaching and learning -- most include elements of all three (Oja & Smulyan, 1989). Some educators believe that these combined advantages might also lead to enhanced teacher status and morale, as teachers' research activities are shared with the broader educational community (Beck, 1998).

Case studies of action research have supported the expectations and advantages listed above. Teachers who engaged in action research indicated that they became more reflective about their instructional practices during the inquiry (Caro-Bruce & McCreadie, 1994). Some teachers reported that their action research project convinced them to change their teaching, for example, by giving more attention to prerequisite knowledge and skill (Buckmaster, 1994), introducing strategies for promoting gender equity (Stroeher, 1994), integrating project-based activities into a traditional science curriculum (Scott, 1994) or shifting from traditional to authentic student assessment practices (Ross, Rolheiser, & Hogaboam-Gray, 1999). Others reported that action research gave them greater insight into students' thinking, for example, concerning students' cognitions about their teacher's assessment practice (Stuart, 1994). Still others have credited action research with motivating teachers to change the context in which teaching occurs, for example, by extending teacher collaboration within the school (Simms, 1994) or motivating teachers to challenge assessment policies that fail to acknowledge the out-of-school achievements of minority students (Kester, 1994).

Almost all studies of action research examine effects on teachers or students in isolation, without comparison to other in-service treatments. The only reported study to compare action research to another professional development found significant student benefits for the former (Ross, Rolheiser, & Hogaboam-Gray, 1998). In this study 23 classes were randomly assigned to two frequently used professional development methods. In the *skills training* treatment expert presenters provided strategies for teaching students how to evaluate their work. Teachers were expected to implement the strategies presented. In the *action research* treatment teachers received the same resources but the in-service sessions emphasized the process used by a previous group of teachers to improve their use of student self-evaluation. Pre- and post-test student surveys and interviews indicated that the action research condition made a more positive contribution to student attitudes toward self-evaluation than the skills training condition. The advantage of the action research condition was attributed to (1) sharing control in the in-service provided a better model of sharing control in the classroom, and (2) the handbook examples provided to teachers in both conditions were generated in earlier action research projects, making the information more accessible to teachers in the action research condition.

There are also disadvantages of action research. There is concern that action research is still not strongly embraced and legitimate in education because it is undermined by current paradigms of educational research and practice (Beck, 1998). Many researchers still do not value it as a recognized form of knowledge production. Those who do not value action research do not see the importance of drawing on teachers' experience to identify questions neglected by researchers, nor see how the interpretation of findings might be enriched with the tacit knowledge of teachers (Lytle & Cochran-Smith, 1990). Likewise,.in contexts where teacher decision-making, initiative, and experimentation are not valued, it is difficult to find the support for action research. Accordingly, many preservice and inservice programs and activities are "typically organized to disseminate a knowledge base constructed almost exclusively by outside experts" (Cochrane-Smith & Lytle, 1993). Another disadvantage of action research is that many teachers lack skill in research methods. This is often a problem affecting even teachers with formal training in conducting research (Green & Kvidahl, 1990). Another disadvantage or challenge associated with action research is that teacher involvement is also limited by lack of time to do research. In addition, cultural norms giving primacy to classroom instruction over all other teacher roles constrain teachers participation in research. If workplace conditions are not conducive, action research can end up being an add-on activity for teachers, and consequently difficult to maintain as a regular practice.

The combined in-service strategy used -- an action-research enhanced approach to the train the trainer method -- was utilized in a belief that the combined advantages of the two methods would outweigh the disadvantages of using either approach as the sole strategy. The attributes of the combined strategy included: 1) staff developers providing instruction to work group representatives; 2) the recipients of direct training were expected to master the new material and then teach it to their peers in the home unit using a collaborative model; 3) initial focus of the action research and follow up support were intended to focus on practical problems; 4) an emphasis on professional development was maintained; and 5) an overall structure that provided participants time and support for dialogue.

Based on the literature review we anticipated that the combined approach would contribute to: 1) the improved practice of individual teachers; 2) teachers' sense of control of

their work lives; 3) teachers becoming more reflective about their practice, becoming instructional theorists; 4) the development of a collaborative culture of inquiry; and 5) teachers challenging the system politically.

Table 1 About Here

Research Question

We conducted an exploratory investigation of the effects of a combined in-service strategy. Our inquiry was guided by the general question, "will an action research enhanced approach to the train the trainer method of in-service contribute to teacher learning?" We used quantitative and qualitative techniques to address the question.

Method

Sample

A joint school-university team that had been developing student assessment strategies for cooperative learning classrooms over a five-year period initiated the project. Schools in one region of a large school district were invited to identify a team of two teacher leaders (the trainers) and two other teachers (the trainees) who were using cooperative learning regularly and were interested in working on their student assessment strategies. Twelve of 14 schools chose to participate. They identified 43 teachers[2]: 61% were from elementary schools and the remainder from secondary. The sample was 78% female and relatively young (mean experience=12.8 years). The teachers had participated in a variety of professional programs (58% had additional university qualifications) but only one had a graduate degree.

Sources of Quantitative Data

At the beginning and end of the study, all teachers completed a survey containing five scales. *Use of Self-Evaluation* consisted of 12 Likert items measuring teachers' self-reported use of self-evaluation strategies. For example, "my students and I brainstorm together the criteria for their self-evaluation." The items were generated from the four stages of teaching student self-evaluation (to be described below) for this study. Half the items were negatively worded.

Support for Authentic Student Assessment" measured teachers' commitment to authentic assessment practices (e.g., performance tasks, portfolios, self-evaluation) and the extent to which teachers support the values of authentic assessment (e.g., student participation in evaluation decision making). For example, "I use parent-teacher conferences to communicate student learning". *Support for Traditional Testing* was a parallel scale measuring teachers' commitment to traditional test practices (e.g., tests should be administered to individual students at the end of units) and values associated with these practices (e.g., secrecy). For example, "My primary purpose for assessment is to assign grades to students." The 26 Likert items in these two scales were selected from 52 items developed by Haydel, Oescher, Kirby, & Brooks (1997). The factor loadings reported by Haydel et al. were used to select the items.

[2] Five teams had only 3 members.

There were 16 Likert items measuring teachers' expectations about their professional abilities. The items were adapted from Gibson & Dembo (1984), the most frequently used teacher efficacy instrument. *Personal Teaching Efficacy* measured teachers' confidence in their teaching abilities, focusing on their ability to teach students how to evaluate their work. For example, "when a student improves at self-evaluation, it is usually because I found more effective approaches to teaching self-evaluation." Gibson and Dembo's original instrument referred to general expectations about teacher ability to bring about student learning. The items were modified to focus on teaching self-evaluation because social cognition theory (Bandura, 1997) suggests that self-efficacy varies within-individuals and there is growing evidence of within-teacher variability on teacher efficacy measures (Raudenbush, Rowan, & Cheong, 1992; Ross, Cousins, & Gadalla, 1996). *General Teaching Efficacy* measures teachers' beliefs about the ability of the teaching profession to bring about learning in all children. For example, "The amount that a student can learn is primarily related to family background." Teachers with high scores on either of these teacher efficacy scales are more likely than teachers with low scores to set high expectations for their students and themselves, persist through obstacles, and have higher student achievement (Ross, 1998).

Sources of Qualitative Data

The major source of qualitative data were reports of the action research projects of the teachers (Laginski & Llyod, 1998). For example, one teacher had grade 3 mathematics students assess their pet home construction projects. Teacher and students developed a rubric together; students used the rubric to self- and peer-evaluate; the teacher conferenced with each student to triangulate the self-, peer-, and teacher-evaluations of the child's pet home and to set learning goals for mathematics. Each teacher recorded his or her project on a planning template, with attachments, that was designed to communicate the products of the in-service in sufficient detail to enable another teacher to use the ideas in his or her own classroom. This template provided the agenda for teachers to share the results of their work with other teachers attending the final in-service. The three investigators compiled field notes on teacher interactions at the sessions. Teachers also completed an oral and written self-evaluation ("What did you learn? How did your kids benefit? What advice would you give to others/using adapting your ideas?") and a peer evaluation. In the peer evaluation teachers received oral advice from one school partner ("One idea I really liked is...because... One question I have is...") which the recipient of the peer evaluation recorded.

Treatment

The five staff developers responsible for designing and delivering the treatment were a combination of teachers and university personnel who had been engaged in inquiry and staff development related to the use of student self-evaluation strategies over the five previous years. Together with other members of the CLEAR group (a school-university collaborative inquiry partnership), these five staff developers had been engaged in devising and refining a four-stage model for teaching students how to evaluate their work: (i) involve students in setting the criteria on which they will be evaluated; (ii) model the criteria; (iii) give feedback on student understanding of the criteria; and, (iv) help students use self-evaluation data to set goals (Rolheiser, 1996). The in-service procedures were a refinement of our previous efforts to develop an action research approach to professional development (Ross et al, 1998).

In the first session, the two teacher leaders (trainers) from each school attended an initial full day session in January (9:00-4:00) to learn strategies for teacher self-evaluation, and strategies to work with their two partners (trainees) following the first session. The design of the initial day included a self-assessment of each participant's current use of student self-evaluation, and hearing an overview of the project, including goals, timelines, and participant expectations. The researchers on the staff development team provided an overview of the theory and research behind student self-evaluation, and provided some guidelines for helping students understand what self-evaluation is and why it is important. Next, the trainers participated in an experiential activity designed to introduce them to the entire four-stage model for self-evaluation, using narrative writing (the introduction to a horror story) as the focus. After the experience the participants carried out a critical analysis of the "Woes and Wows" of each of the four stages. This activity allowed them to predict problems they might have in implementing each stage in their classrooms, as well as anticipating advantages of working through such challenges. Each of the trainers received a copy of a self-evaluation handbook (Rolheiser, 1996) with case studies of the processes and products of action research, along with practical instruments and forms to support each of the four stages of the self-evaluation model. The participants had an opportunity to examine and use the book throughout the session. The session also included a brainstorming activity designed to generate ways that the trainers could engage their partners back at the schools in the learning that the trainers had experienced during the first in-service. The session ended with surveys distributed for all participants.

The action research enhanced train the trainer treatment encouraged all participants to replicate the four-stage model, but it was up to them to determine how they would construct this in their different settings. To support such experimentation, the expectation was communicated in the first session that both trainer and trainee would attend the second in-service being prepared to report what actions they had jointly carried out around student self-evaluation. To this end, the trainers were provided an "In-school Meeting" structure to guide their meetings with their trainees between session one and two (see Appendix 1). The format included an interview and written recording for all participants regarding what they did the past week, successes experienced, and problems or concerns experienced. A process for problem-solving "Barrier-Busting" (see Appendix 2)was modeled for trainers in the first session, and included as a process for the in-school meetings. Trainers were asked to bring their in-school meeting recording sheets to the second in-service. To support the in-school collaboration all trainees received two full days of in-school release time to conference with and train their school-based partners over the course of the treatment. The school district also asked all teachers involved in the project to contribute after hours time equal to two days.

In the second session, approximately four weeks later, both trainers and trainees attended an after school session together (4:00-7:00 p.m.). School teams began the session by sharing what they did since the first session, with a focus on successes. The staff developers modeled a visual flow chart method to record the participants' initial steps. The process involved trainers interviewing their trainees (and then vice versa), and doing a visual flow chart that recorded the key events of each person's experimentation with self-evaluation (see Appendix 3). The final bubble on the flow chart was a response to: " What did you want to do that you didn't do this time?". When finished the interview the partners labeled the flow chart with the stages of the four-stage model they experimented with. The interview highlights were shared in the large

group and encouragement provided to experiment with any stages not tried. Additional ideas were provided by the staff developers regarding the four-stage self-evaluation model. Next, one of the staff developers modeled the "Barrier-Busting" process once again. Finally, the participants were set up for a culumination activity to be shared at the last in-service session nine weeks later. All participants were provided with a lesson template for recording a key lesson targeted to some or all stages of the four-stage model, to be brought to the final in-service, along with sample artifacts from that lesson.

In the final half-day session two months later, trainers once again attended during the day with their trainees. Goals for the session were shared, which included the celebration of successes, the identification of good ideas to share with other teachers, focussed reflection, and planning next steps for continued growth. The session started with a community circle, where each teacher shared one word that reflected what they or their students had learned from self-evaluation. Then, groups of three were formed across schools (elementary schools together, and secondary schools together). One person shared a learning experience they organized for their students as part of their action research, while the other two provided positive feedback ("What I liked...") and raised questions for clarification or to probe. This process of sharing teacher plans, student artifacts, and teacher reflection was done orally and in writing. All three participants carried out this process. Upon completion, each person was asked to complete an individual reflection sheet with three questions ("As a teacher, what did you learn?; How did your students benefit?; and, What advice would you give to others using or adapting your ideas?"). The final part of the third in-service involved elementary and secondary pairs joining together. Each participant once again independently completed the self-assessment profile completed in the first session. Each person compared their growth with the previous profile and discussed this with their colleagues, providing evidence of growth where possible. Finally, surveys were completed and lesson templates/artifacts submitted.

Analysis

Descriptive statistics (means, standard deviations, internal consistencies) were compiled for the quantitative data. Pre to post differences were assessed using t-tests and effect sizes were calculated using Glass, McGaw & Smith's (1981) procedures. Themes were developed from the qualitative data using analytic induction (scanning the data for categories and relationships among them), constant comparison (checking responses against other data for the same case), and triangulation (of data sources and judges) (Creswell, 1998).

Results

Quantitative Results

Table 2 displays the means, standard deviations, and instrument reliabilities before and after the in-service. The internal consistencies of the scales were adequate (most were in the.70s and .80s). Table 2 shows that scores changed in expected ways. After the in-service teachers' self-reported use of self-evaluation was up substantially (ES=1.43, a large effect). There were small but significant changes in teachers' beliefs about student assessment. Teacher support for authentic assessment increased (ES=.34) and support for traditional testing declined (ES=-.23).

Personal teaching efficacy (teacher confidence in their ability to use self-evaluation) significantly improved (ES=.60, a moderately large effect). General teaching efficacy, which was not directly targeted in the in-service, did not change significantly. These quantitative data suggest that the in-service was effective in meeting its goals.

Table 2 About Here

Qualitative Results

Theme 1 Teachers enacted the practices recommended in the in-service.

All teachers included artifacts (lesson plans, instruments, examples of student work) that they had developed for their own grades, subjects and topics in response to the in-service. All four stages of teaching self-evaluation outlined in the in-service were covered in every school but not by every teacher. Teachers were twice as likely to develop activities around Step 1 (involving students in setting the criteria for the evaluation) than the other steps: 84% provided information indicating that students were involved in developing a checklist of skills, a set of criteria with the highest level described or, most frequently, a rubric in which 2-4 levels of performance were described for 3-5 criteria. The remaining teachers also provided checklists and rubrics but it was not possible to tell from the information given what role students played in developing assessment criteria. Each of the remaining stages were overtly addressed by half as many teachers as attempted Stage 1. The most common practice was to enact Stage 1 followed by two or more of the remaining stages.

Exhibit 1 provides a description of a typical teacher project (using self-evaluation to strengthen paragraph writing of grade 9 students). Exhibit 2 displays one of the rubrics the same teacher developed for her class (S.E.E.C. in the second row is a mnemonic familiar to students in the class). This example [39a[3]] illustrates key ideas presented in the in-service: development and refinement of a rubric with extensive student involvement; creation/selection of anchor papers to instantiate the rubric descriptions; triangulation of self-, peer-, and teacher-evaluations; and goal setting.

There were few elementary-secondary differences. A higher proportion of secondary teachers explicitly required students to set goals and actions based on their self-evaluations. Although elementary teachers were less likely to include formal goal setting, the elementary teachers who did were more likely than secondary teachers to schedule a teacher-student conference.

All teachers indicated that they had learned something about teaching from using self-evaluation in their classrooms. What they learned was highly individual--22 different categories of response were given. For example, several teachers commented that consensus could be reached around expectations, including a grade 2 teacher who stated "I learned that students have similar ideas to me in what is expected of them. They just need help in wording the

[3] The references to the qualitative data use the form: teacher ID#, followed by the data section (a=artifacts, s=student benefits, t=teacher statements about what he or she learned, ad=advice teachers offered to those not in the in-service, p=peer feedback from a teacher in the in-service, q=question posed by a peer)

expectations." [19t] Other teachers noted the importance of precision in stating expectations, including a grade 6 social studies teacher who indicated that the "wording of criteria is very important and needs to be most specific." [15t] Some teachers, particularly those with younger students, were pleasantly surprised about the ability of students to evaluate their work. A grade 5-6 science teacher reported that "students can set reasonable criteria for themselves with very little guidance...students (majority) are able to evaluate their performance honestly and set reasonable goals for [the] next task." [20t] Other teachers reported a loosening of constraints around evaluation procedures. For example, a grade 11 creative writing teacher wrote "It's okay to take some of the onus off the teacher". [31t]

When asked what advice they would give to teachers using the ideas and materials they produced in the project, the responses were again highly individual with 33 different categories offered. Most of the suggestions were confirmations of experience congruent with the expectations of the in-service. For example, from a grade 2 teacher, "the criteria must be developed with the students in their own language" [5ad], from a grade 10 Family Studies teacher, "collect student work to show as examples" [41ad], and from a grade 12 Art teacher, "be willing to adapt or compromise in order to progress." [38ad] Some of the teachers described changes that they would make in their procedures or their instruments. For example, a grade 9 Art teacher suggested that teachers using her lesson plans should "be willing to go beyond content into learning strategies." [38ad] Other suggestions focused on things that teachers had not done but thought they should do. For example, teachers recommended that self-evaluation be done throughout the year so that students could see their growth over time, that a peer evaluation component be added, that goal setting be formalized, and that teacher-student conferences to interpret evaluation data be arranged. These suggestions were all congruent with the goals of the in-service.

Theme 2 Teachers developed personal rationales for including self-evaluation in their teaching.

All teachers articulated a personally meaningful rationale for using self-evaluation in their classrooms, based on benefits for students. Although 17 different types of benefits for students were identified, six were particularly common. In order of frequency: (i) Self-evaluation increased student clarity about expectations for particular assignments. For example, a grade 7 English teacher reported that "students knew exactly what was expected and how it would be marked" [16s]. (ii) Teachers believed that students developed a sense of ownership and a greater sense of control of the evaluation process. This example, from a grade 12 art teacher, was typical: "The students learned that their ideas are valid and that they have a direct input into their grade." [38s] (iii) Many teachers believed that the quality of student performance had improved as a direct result of self-evaluation training. A grade 3 mathematics teacher reported that: "[Students] produced better products because the children designed and used the criteria. When discussing completed work, both the teacher and the student work from the same level." [1s]. (iv) Teachers believed that self-evaluation engendered a stronger sense of student responsibility for their work. For example, from a grade 8 language teacher, "students take on greater accountability when they are involved in setting up the criteria." [3s] (v) Teachers argued that the clarity of expectations provided by self-evaluation increased student motivation. For example, a grade 6 social studies teacher stated: "Students will rise to meet the higher performance levels. [They] strive for success when it's been determined what they have to do to achieve." [9s] Some

teachers indicated that self-evaluation's contribution to motivation affected only a portion of their class. From a grade 1-2 mathematics teacher, "[self-evaluation] made many choose to bring their work up to a higher level." [23s] (vi) Teachers believed that self-evaluation increased student self-knowledge, as indicated by a grade 4 social studies teacher "They knew their areas of weakness and could improve on them when given another assignment." [7s]

Theme 3 Teachers asserted rather than demonstrated their claims about the contribution of self-evaluation to student and teacher learning.

Teachers made a broad array of claims about the benefits of self-evaluation but they did not provide any evidence to support these claims, nor were they asked to do so by their peers. When we asked teachers how they knew, for example, that student performance had increased, the data sources were ambiguous, the standards of comparison unclear, and procedures to ensure the credibility of the findings were virtually absent.

Theme 4 Teachers learned from each other.

Each teacher produced an individual project. Although most teachers identified a unique area of the curriculum to work in, there were some commonalities within schools. One elementary team focused on science with the kindergarten, grade 2, 4, and 8 teachers each focusing on using self-evaluation on a performance task appropriate to the grade. One high school team focused on different skills in the visual arts. There was also a pair of teachers in one school who worked together on language and three teachers in another school who worked on oral presentation skills.

Collaborative learning was most visible in the peer evaluation process. Teachers were asked to indicate one aspect they liked and to pose one question in response to a peer's project. The items that teachers liked in the projects of their peers were the same features, described above, that they liked in their own work. For example,

> I liked the way that you really gave your students input into their own learning. Your rubrics are very detailed and organized and it sets [students] up to be accountable. The students know exactly what is expected of them and I'm positive that they learned a lot by both creating the criteria for the rubric and applying it to their performance. [12p]

In most instances the questions posed by peers asked how the teacher was going to follow up the self-evaluation activities with the same activities in different topics or subjects. There were also questions that implied criticisms or made tacit suggestions. For example, a grade 2-3 teacher who gave students a teacher constructed rubric for evaluating their use of the writing process was asked "How would you go about working with the students to establish their own criteria? Would you focus on one aspect of the process or set up a rubric for each stage?" [14q] In her reflections the teacher offered advice to teachers (who might use the materials she developed in the project) that incorporated the peer feedback she received "Students would be involved in setting criteria and designing a rubric for each stage of the writing process." [14ad]

We identified 13 instances in which the peer questions implied changes the teacher could make. The recipients of the feedback, as a group, covered fewer of the stages in teaching self-evaluation than the rest of the sample. The feedback encouraged them to attend to a stage they had not addressed in their project. In ten of these instances teachers responded with advice for others that incorporated the suggestions. For example, a grade 7-8 English teacher who focused exclusively on involving students in defining the highest level of performance on a checklist for assessing oral presentations was asked "Did they over or under estimate themselves? Perhaps a space left for comment for justifying the numerical rating they give themselves..." [27q] The teacher's advice to others was "give room for kids to justify mark on evaluation." [27ad]

Summary of Results

The quantitative and qualitative data present a similar picture. The in-service contributed to teacher learning of student evaluation skills. Teachers' self-reported use of self-evaluation increased and the artifacts demonstrated that they had enacted in contextually appropriate ways the procedures recommended in the in-service. Teacher support for the values of authentic assessment strengthened and their commitment to traditional testing declined, both overt goals of the in-service. The qualitative data indicated that teachers had identified personal rationales for using self-evaluation in their classrooms, mainly based on perceived student benefits, and they espoused the same beliefs in offering advice to their peers. There was also evidence that teachers learned from each other, offering peer feedback congruent with the goals of the in-service. Finally, teachers' confidence in their ability to use self-evaluation increased significantly during the study, while general expectations about the efficacy of teaching, an area not overtly addressed in the in-service were unaffected.

Discussion

The quantitative and qualitative results pointed in the same direction. The action research enhanced version of the train the trainer model had a positive impact on teacher learning. The effect sizes, for the quantitative data, were statistically significant and ranged from small to large.

Since this exploratory study did not have a control group, some comparisons are required. In general, the results of in-service reported in previous research have been disappointing due to the predominance of brief one-shot sessions unrelated to teachers' perceived needs. Better results have been reported for approaches that share many of the characteristics of the in-service model used in this study, such as teacher control of implementation, classroom experimentation, reporting successes and failures to peers, and setting new goals for future professional growth (Stallings, 1989 in Fullan, 1991).

Some of the measures used in this study have been included in other studies. Teacher efficacy tends to be a stable trait, after the initial years of teaching, which is not easily influenced through planned interventions. A review of 11 studies that attempted to heighten teacher expectations of their teaching abilities through skills-based in-service found mixed results (Ross, 1998). Even the few successful projects produced small effect sizes. The review found that teacher expectations were more likely to improve when teachers implemented the prescriptions

of the in-service and discussed interpretations of their experiences with peers, two processes included in the model in this study.

The other measures of teacher growth used in this study were also included in an unreported study of the effects of graduate instruction on teachers' assessment beliefs and practices. There was a significant increase in self-reported use of student evaluation during the graduate course. The effect size (.80) was lower than in the current study and there were no significant differences on teacher support for authentic or traditional testing cultures. These comparisons suggest that the in-service model used in this study contributed to teacher learning, although without a control group threats to the internal validity of the findings cannot be discounted.

Although adding an action research component to the train the trainer model strengthened the in-service, the full benefits of the action research approach were not realized in this study. There was little evidence of a culture of inquiry developing. The teachers did not collect systematic data on the effects of their changed practice and did not look for evidence when reflecting on the projects of others. The most likely reason is that no specific training in research skills was provided, no models of appropriate data were displayed, and no importance was attached by the presenters to the credibility of claims. These are remediable problems. We regard the current exploration as a promising start to build on. In our subsequent efforts we plan to integrate design and measurement issues into the agenda.

Table 1 Advantages and Disadvantages of Two In-service Methods

In-service Method	Advantages	Disadvantages
Train the Trainer	.low cost .improved school culture .teacher learning	.creates status hierarchy .ineffective change strategies .insufficient time
Action Research	.improved practice .increased teacher control .greater teacher reflection .culture of inquiry developed .challenge to system	.lack of research skill .insufficient time and resources

Table 2 Means, Standard Deviations, Reliabilities and T-tests of Outcome Variables

	Pretest (n=43)			Posttest (n=43)			
Variables	Mean	SD	alpha	Mean	SD	Alpha	T
Use of Self-Evaluation	3.73	.82	.82	4.90	.57	.85	-9.66***
Authentic Assessment	3.48	.46	.76	3.74	.41	.77	-4.77***
Traditional Testing	2.59	.52	.85	2.47	.37	.78	2.27*
Personal Teaching Efficacy	3.97	.53	.67	4.29	.65	.82	-4.01***
General Teaching Efficacy	3.72	.74	.73	3.85	.61	.60	-1.39

*** $p<.001$ ** $p<.01$ * $p<.05$

Exhibit 1

Example of Procedure for Teaching Self-Evaluation in Grade 9 English

Directions:

1. The teacher introduces 'self-evaluation'. What is it? What are the pros and cons?
2. Groups brainstorm elements of descriptive paragraphs, and then participate in a whole class discussion about which criteria is particularly important for effective writing of a descriptive paragraph.
3. Groups choose 3 criteria; discussion follows.
4. Class chooses 3 criteria to base rubric.
5. Rough draft of rubric prepared by teacher then brought back for revisions.
6. Final draft of rubric prepared; each student receives a copy.
7. Groups are asked to write a descriptive paragraph for each level: low-middle-high.
8. After each group has submitted their 3 examples of descriptive paragraphs, groups receive copies of all paragraphs.
9. Class decides which "group" of 3 paragraphs is the best example of low-middle-high levels.
10. Each student now receives a copy of this final draft of examples.
11. Opportunity for each student to write a descriptive paragraph.
12. Students self-evaluate their descriptive paragraphs using rubric.
13. Descriptive paragraphs are now peer-evaluated, and students are given the opportunity to conference with peers.
14. Teacher evaluates paragraphs using same rubric.
15. Teacher and student meet to discuss evaluation of descriptive paragraphs.
16. Students set goals for improvement.
17. Students get a second chance at writing a descriptive paragraph.

Produced by Eugenie Samara, Durham District School Board, Whitby, Ontario.

Exhibit 2

Evaluation

Performance/Outcome: Descriptive Paragraph

Name: _____ Date: _____

Rated By: Self Peer Teacher

1 2 3 4 5 6

Criterion	Low	Middle	High
1. 5 Senses Mental Images Score: _____	minimal use of senses or mental images	some use of the 5 senses and mental images	excellent use of senses and mental images
2. Format / Structure Score: _____	little use of format or structure	somewhat/partial use of format / structure	excellent use of format / structure
3. Mechanics (spelling and punctuation) Score: _____	quite a few errors	hardly any errors	minor or no mechanical errors

GOAL:
SPECIFIC ACTIONS I WILL TAKE...

1.

2.

3.

4.

5.

TOTAL SCORE: ☐

18

Produced by Eugenie Samara, Durham District School Board, Whitby, Ontario.

SELF-EVALUATION RESEARCH PROJECT

IN-SCHOOL MEETING

Dates agreed upon for meeting(s): _____

Time: **30** minutes

The format of each meeting is the same. The process includes 2 parts:

1) Review by each team member regarding what they did about self-evaluation in the past week and successes experienced (e.g. class developed a rubric, 2 short practice sessions using a form from the book, etc.). As each team member verbally reports, one team member briefly records the information below.

2) Each team member brings forth a challenge, problem or concern encountered. The team completes a cycle of barrier-busting (see attached sheets), recording the information on the following summary sheet (page 2 of this packet).

Please bring summary sheets (pages 1 & 2) to our next group meeting.

IN-SCHOOL TEAM MEETING # _____

SCHOOL: _____

1.

	What I did ...	*Success(es!)*
Name: _____		
Name: _____		
Name: _____		
Name: _____		

2. Barrier-Busting *(see attached sheet for process directions)*

Name: _____	Barrier, Problem or Concern: Ideas Generated by Colleagues: I think I'll try ...
Name: _____	Barrier, Problem or Concern: Ideas Generated by Colleagues: I think I'll try ...
Name: _____	Barrier, Problem or Concern: Ideas Generated by Colleagues: I think I'll try ...
Name: _____	Barrier, Problem or Concern: Ideas Generated by Colleagues: I think I'll try ...

Barrier-Busting

The aim of Barrier-Busting is to prevent or eliminate barriers that inhibit the use of self-evaluation. The procedure is described below.

With a team of supportive colleagues ...

One Teacher

- describes a barrier, problem, or concern related to self-evaluation

Colleagues

- check their understanding of the problem and ask questions for clarification if necessary
- use DOVE Brainstorming to generate a list of possible solutions

*

Defer judgement -- accept all ideas, list everything, evaluate later

Opt for original and off-beat -- anything goes, especially different and crazy ideas

Vast numbers of ideas are best -- get many ideas, the more the better

Expand by association -- piggyback off of each other's ideas

The Teacher

- listens and records all suggestions
- when brainstorming is completed, tells colleagues which idea looks most promising and briefly describes next steps to put the selected idea into action
- reports results to colleagues at the next meeting

The team recycles the process so that every teacher in the group has an opportunity to target a barrier and gain insights from colleagues.

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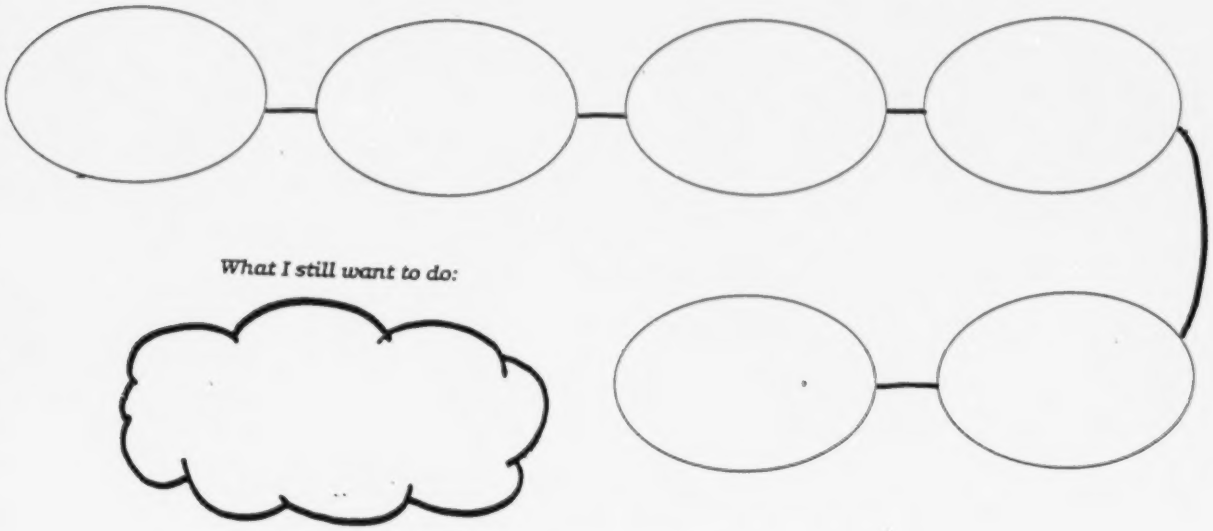
B. Bennett, C. Rolheiser, L. Stevahn (1991)
Cooperative Learning: Where Heart Meets Mind

SELF-EVALUATION: HELPING MY STUDENTS GET BETTER AT IT

1. Interview a colleague. Record the key events of their experimentation with self-evaluation.
2. Final Bubble on the flow chart: "What did you want to do that you didn't do this time?"
3. When finished the interview label what stages of the 4-stage model were experimented with.



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